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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,503	03/02/2004	Robert K. Evans	20634YCA	1892

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EXAMINER	
BLUMEL, BENJAMIN P	
ART UNIT	**PAPER NUMBER**
1648	
MAIL DATE	**DELIVERY MODE**
05/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/791,503	EVANS ET AL.	
	Examiner	Art Unit	
	Benjamin P. Blumel	1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10-19,24-32,47,49-51,53,55-60 and 62-67* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10-19, 24-32, 47, 49-51, 53, 55-60 and 62-67* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicants are informed that the rejections of the previous Office action not stated below have been withdrawn from consideration in view of the Applicant's arguments and/or amendments.

Specification

Applicants are asked to update the first line of the specification or reflect the present status of US Application Serial Number 09/799,937.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

(Rejection Maintained) Claims 10-18, 24-32, 47, 49-51, 55-60 and 62-67 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5, 10 and 14 of copending Application No. 11/071,095. Although the conflicting claims are not identical, they are not patentably distinct from each other because they

claim the same invention, therefore the claimed invention of the instant application is anticipated by the claimed invention of the co-pending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

Applicant's arguments with respect to claims 10-19, 24-32, 47, 49-51, 53, 55-60 and 62-67 have been considered but are moot in view of the new ground(s) of rejection. Applicants argue that Wu et al. do not teach the use of EDTA and Ethanol combined and that Wu et al. merely indicates that histidine is part of a buffer. In response, Wu et al. suggests the use of antioxidants that have multiple properties, including cleavage of di-sulfide bonds and reduction of hydroxyl radicals, but the specific antioxidants disclosed by Wu et al. are meant are examples of antioxidants, which are known in the art to reduce levels of free radicals, thereby stabilizing the adenovirus formulation. In addition, the applicants also argue that since Wu et al. focuses on antioxidants that inhibit oxidation by oxygen and not diatomic chelators, such as EDTA. However, the findings of Kanagae et al. (Japanese Journal of Medical Science in Biology, 1994) with regard to EDTA and its ability to improve the stability of adenovirus preparations, further supports the teachings of Wu et al. and Evans et al. (*see below*). With regard to the presence of histidine, Wu et al. does teach its use in the adenovirus formulations, therefore, this aspect of the invention is obvious. *See pages 2, 3, 8, 26 and 27.*

Applicants also argue that Evans et al. does not suggest the use of an EDTA/Ethanol combination with an adenovirus preparation. However, Evans et al. teach the success of increasing the stability of plasmid DNA upon treatment with the EDTA/Ethanol combination,

which are antioxidants. This benefit of adding EDTA/Ethanol provides for a means of stabilizing DNA based vaccines, which is an additional focus of Evans et al. Therefore, one in the art would be motivated to employ this combination in view of the teachings of Wu et al. *See whole document.*

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 10-19, 24-32, 47, 49-51, 53, 55-60 and 62-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. (US 2002/0031527) and Evans et al. (Journal of Pharmaceutical Sciences, 2000).

Wu et al. teach the formulation of Adenovirus for gene therapy. The goal of their work was to develop liquid and lyophilized adenovirus formulations, which remain infective after incubating at 4°C for 6 months. The formulations taught by Wu et al. contain Adenovirus

formulations with titers of 10^9 pfu/ml that contain sucrose, Tween-80, NaCl, $MgCl_2$, histidine, mono-Tris and the use of antioxidants to inhibit oxidation. The amounts of each component used are sucrose at 2.5-10%, mono-Tris or histidine at 1mM-50mM and a pH of 8.2, 1mM of $MgCl_2$, Tween-80 at 0.02-5%, and 150mM of NaCl. These components were used in multiple arrangements in order to optimize for the most stable formulation. Wu et al. do not specifically teach the use of EDTA and Ethanol, but Wu et al. do teach the "antioxidants such as β-mercapto ethanol, DTT, citric acid and the like may also be considered for use in formulations".

Evans et al. teach the beneficial application of an EDTA/Ethanol mixture towards improving DNA stability. Evans et al. investigated the effect EDTA at 0.5mM and Ethanol at 1% had on supercoiled DNA, separately and combined. The combination had an additive effect towards increasing the DNA stability of the supercoiled DNA while the EDTA or Ethanol alone did not.

It would have been obvious to one of ordinary skill in the art to modify the formulations taught by Wu et al. in order to provide an adenovirus formulation according to the instant invention. One would have been motivated to do so, given the suggestion by Wu et al. that the antioxidants employed are not restricted to those specifically mentioned, but rather those known in the art. There would have been a reasonable expectation of success, given the knowledge that the combination of Ethanol and EDTA stabilized DNA, as taught by Evans et al. In addition to the teachings of Wu et al., the common practice of routine optimization would also motivate one in the art to produce the claimed formulation of A165, see MPEP §2144.05 (II)(A). Thus the invention as a whole was clearly *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Summary

No claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin P. Blumel whose telephone number is 571-272-4960. The examiner can normally be reached on M-F, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bruce Campell can be reached on 571-272-1600. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Benjamin P Blumel/
Examiner
Art Unit 1648

BRUCE R. CAMPELL, PH.D
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600